

WHAT IS CLAIMED IS:

1. A multi-chip package comprising:
 - a leadframe having a leadframe pad, the leadframe pad having an upper surface and a lower surface;
 - a first chip having a first plurality of bonding pads arranged on a first active surface;
 - a first adhesive member arranged between a portion of the first active surface and a portion of the lower surface of the leadframe pad, the first adhesive member attaching the first chip to the leadframe pad;
 - a second chip having a second plurality of bonding pads formed on a second active surface and a backside surface opposite the second active surface;
 - a second adhesive member arranged between a portion of the backside surface and a portion of the upper surface of the leadframe pad, the second adhesive member attaching the second chip to the leadframe pad.
2. A multi-chip package according to claim 1, wherein:
 - the leadframe pad includes a central opening; and
 - the first chip is mounted to the lower surface of the leadframe pad in a manner that exposes at least a portion of the first plurality of bonding pads within the central opening.
3. A multi-chip package according to claim 1, wherein:
 - the leadframe pad includes a central opening; and
 - the first chip is mounted to the lower surface of the leadframe pad in a manner that exposes each of the first plurality of bonding pads within the central opening.

4. A multi-chip package according to claim 2, wherein:

the second adhesive member is formed from a combination of an adhesive tape member and a cured liquid adhesive.

5. A multi-chip package comprising:

a leadframe having a leadframe pad, the leadframe pad having an upper surface, a lower surface and a central opening, inner leads and outer leads, the inner leads being arranged around the leadframe pad;

a first chip having a first plurality of bonding pads arranged on a first active surface;

a first adhesive member arranged between a portion of the first active surface and a portion of the lower surface, the first adhesive member attaching the first chip to the leadframe pad;

a first plurality of bonding wires providing electrical connections between the first plurality of bonding pads and inner leads;

a second chip having a second plurality of bonding pads formed on a second active surface and a backside surface opposite the second active surface;

a second adhesive member arranged between a portion of the backside surface and a portion of the upper surface of the leadframe pad, the second adhesive member attaching the second chip to the leadframe pad;

a second plurality of bonding wires providing electrical connections between the second plurality of bonding pads and the inner leads;

a package body sealing the first and second chips, the first and second pluralities of bonding wires and the inner leads; and

outer leads extending from the package body providing external electrical connections to the inner leads.

6. A multi-chip package according to claim 5, wherein:

the second adhesive member substantially fills a volume defined by the first active surface, the leadframe pad, the backside surface and an outer periphery of the second chip.

7. A multi-chip package according to claim 6, wherein:

the second adhesive member included both an adhesive tape member and a cured liquid adhesive.

8. A multi-chip package according to claim 7, wherein:

the adhesive tape member is positioned around the central opening in the leadframe pad and, in combination with a portion of the first active surface, an inner surface of the first adhesive member and an inner surface of the leadframe pad, forms an adhesive cavity; and
the cured liquid adhesive member substantially fills the adhesive cavity.

9. A multi-chip package according to claim 5, wherein:

the first plurality of bonding pads are arranged within an inner periphery of the leadframe pad.

10. A multi-chip package according to claim 9, wherein:

the first plurality of bonding pads are arranged to form a first pair and second pair of parallel rows;

the first pair of parallel rows being arranged generally symmetrically about and adjacent to a central axis of the first active surface; and

the second pair of parallel rows being arranged adjacent opposing edges of the first active surface.

11. A multi-chip package according to claim 10, wherein:
the first pair of parallel rows are substantially perpendicular to the second pair of parallel rows.
12. A multi-chip package according to claim 5, wherein:
the first plurality of bonding pads include a first group and a second group,
the first group being arranged within an inner periphery of the leadframe pad
and
the second group being arranged outside an outer periphery of the leadframe pad.
13. A multi-chip package according to claim 5, wherein:
the second adhesive member is formed substantially from a cured liquid adhesive composition.
14. A multi-chip package according to claim 13, wherein:
the liquid adhesive composition is a nonconductive epoxy resin.
15. A multi-chip package according to claim 5, wherein:
the first chip extends beyond an outer periphery of the leadframe pad.
16. A method of manufacturing a multi-chip package comprising:
forming a leadframe having a leadframe pad, the leadframe pad having an upper surface and a lower surface;

attaching a first chip having a first plurality of bonding pads arranged on a first active surface to the lower surface of the leadframe pad using a first adhesive member, the first adhesive member being arranged between a portion of the first active surface and a portion of the lower surface of the leadframe pad; and

attaching a second chip having a second plurality of bonding pads formed on a second active surface and a backside surface opposite the second active surface to the upper surface of the leadframe pad using a second adhesive member, the second adhesive member being arranged between a portion of the backside surface and a portion of the upper surface of the leadframe pad.

17. A method of manufacturing a multi-chip package comprising:

forming a leadframe having a leadframe pad, the leadframe pad having an upper surface, a lower surface and a central opening, inner leads and outer leads, the inner leads being arranged around the leadframe pad and being in electrical contact with corresponding outer leads;

attaching a first chip having a first plurality of bonding pads arranged on a first active surface to the lower surface of the leadframe pad using a first adhesive member, the first adhesive member being arranged between a portion of the first active surface and a portion of the lower surface;

forming a first plurality of bonding wires between the first plurality of bonding pads and the inner leads;

attaching a second chip having a second plurality of bonding pads formed on a second active surface and a backside surface opposite the second active surface to the upper surface of the leadframe pad using a second adhesive member, the second adhesive member being arranged between a portion of the backside surface and a portion of the upper surface of the leadframe pad;

forming a second plurality of bonding wires between the second plurality of bonding pads and the inner leads;

forming a package body encapsulating the first and second chips, the first and second pluralities of bonding wires and the inner leads; and

forming the outer leads into a predetermined configuration.

18. A method of manufacturing a multi-chip package configured according to claim 5, comprising:

forming the leadframe;

attaching the first chip to the lower surface of the leadframe pad using the first adhesive member;

forming the first plurality of bonding wires between the first plurality of bonding pads and the inner leads;

attaching the second chip to the upper surface of the leadframe pad using the second adhesive member;

forming the second plurality of bonding wires between the second plurality of bonding pads and the inner leads;

forming the package body encapsulating the first and second chips, the first and second pluralities of bonding wires and the inner leads; and

forming the outer leads into a predetermined configuration.